

New Jersey's State Broadband Program



April 24, 2013





Topics

- Overview of the State Broadband Program
- Definition of Broadband
- Importance of Broadband in Urban and Rural Areas
 - Availability and where NJ Ranks
 - Adoption and where NJ Ranks
 - Households
 - Community Anchor Institutions
 - Overview
 - Education
 - Healthcare
 - Business
- Next Steps with the New Jersey State Broadband Program
- Resources





The National Broadband Plan

- Broadband has become an essential tool for today's digital age
- In 2010, Congress requested the development the first National Broadband Plan that lays out a roadmap to improve access, speed and adoption.
- This created available funding through different grants and programs



The State Broadband Program

- New Jersey Office of Information Technology was awarded two different grants by NTIA under the American Recovery and Reinvestment Act (ARRA)

Program	Overview
State Broadband Initiative 	<ul style="list-style-type: none">to create and maintain the first public, searchable nationwide map of broadband availabilityTo Gain better insight of broadband availability, adoption and broadband usage in the State amongst households and community anchor institutions, namely, education, libraries, colleges, healthcare providers, public safety, government and non government institutions that anchor our communities.Provide technical assistance
The Broadband Technology Opportunities Program – (BTOP) 	<p>To support the deployment of broadband infrastructure for a national public safety grade network that provides first responders with improved speed and quality grade</p> <ul style="list-style-type: none">Identify, assess and upgrade current government towers to prepare for national public safety network requirements in rural and urban areasDeploy an interoperable 700 MHz public safety wireless broadband network in North Jersey as a pilot network, leveraging carrier assets in a dense urban high crime area



How do you define
broadband?



What is Broadband?

- The meaning is often not clear because the definition changes with regards to:
 - Speed
 - Types of broadband
 - Availability
 - Need



What is Broadband?

Definition:

- High-speed Internet access that is always on (vs. dial-up)
- FCC 's Definition - (Federal Communications Commission) categorizes an Internet service as “broadband” if it transmits at a speed of at least 4 megabits/second (Mbps) for downloading and at least 1 Mbps for uploading
- Broadband speed requirements vary for personal use vs. use by institutions



Broadband Speed

- The FCC definition of broadband speed has changed as technologies continue to evolve.
- Different capabilities are needed for different applications.

Applications that service different sectors	Speed requirement
Email, Web Browsing, VOIP	768K-1.5 Mbps
Telecommuting, Streaming Music and Video, Remote Surveillance	1.5-3 Mbps
File Sharing, Internet Protocol Television	3-6 Mbps
On-Demand Video, Gaming	6-10 Mbps
Telemedicine, Remote Education, IPTV High Definition	10-25 Mbps
HD Video Surveillance	25-50 Mbps
Video Conferencing, Remote Super Computing	50-100 Mbps
Real-Time Data Collection, Real-Time Medical Image Consultation	>100 Mbps

- Performance issues occur when the service and speed cannot handle the application.



Types of Broadband

- Digital Subscriber Line (DSL)
- Cable Modem
- Fiber
- Wireless (WiFi and Mobile)
- Satellite



Why is Broadband Important?



The Importance of Broadband

Broadband is fast becoming of primary importance for

- **citizens**
- **education**
- **public safety**
- **health care**
- **government**
- **business**

All of which are significant enablers to economic growth, delivery of services and quality of life



Broadband

3 Areas for Consideration

- **Availability**

Is the service available and is it reliable and sufficient for use?

- **Adoption**

Are citizens and community anchor institutions using it?

- **Effective Use**

Are citizens and community anchor institutions leveraging it most effectively?



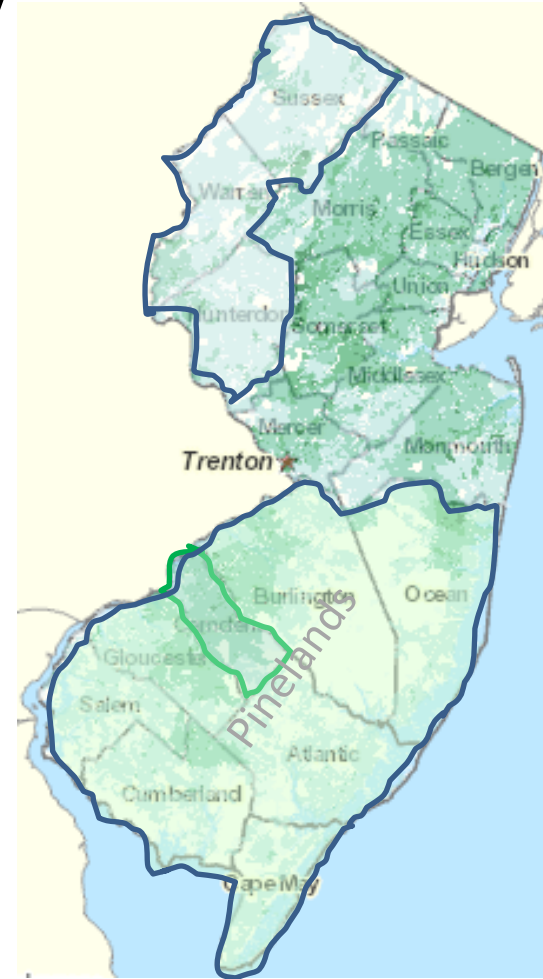
Availability

One First Step in the SBI grant was to gather data from the broadband service providers to determine where broadband is available



Broadband Availability

- The New Jersey Broadband Map updated every 6 months
- NTIA defines *availability* as the **ability to obtain service** within 7-10 days – NOT that it is necessarily already available
- Broadband availability gap is greatest and most expensive in areas with low population density
- The blue outlined area are the lowest populated areas “rural” areas in New Jersey





Broadband Availability in NJ

Here is a snapshot of the State Broadband Map by Technology, speed and # of providers that provide service by area



Legend

Broadband Information

Maximum Advertised Downstream Speed

- < 1.5 mbps
- 1.5 mbps to 6 mbps
- 6 mbps to 25 mbps
- 25 mbps to 100 mbps
- > 100 mbps





Availability

- **The purpose of the broadband map is to:**
 - Identify pockets of unmet demand or need
 - Help policy makers identify where the unmet needs are so they can determine how best to fulfill them
 - Use the map as a tool to market NJ and support decisions for businesses looking to relocate
 - Identify where existing technology infrastructures can be leveraged
 - Help providers and customers find each other
 - Determine opportunities for economic growth





Availability

How New Jersey Ranks

Broadband availability and speeds tend to be highest in

- high-tech
- high-income states
- high population density

Because it is less costly to invest in broadband in metropolitan areas, states that are predominately urban

	The Top Five	Composite score
1	Delaware	9.36
2	Massachusetts	8.57
3	New Jersey	7.84
4	Maryland	7.50
5	New Hampshire	7.09
	U.S. Average	5.00

Source: U.S. Department of Commerce, 2011; Communications Workers of America, 2010

Legend
Broadband Information
Provider Count

- 1 Provider
- 2 Providers
- 3 Providers
- 4 Providers
- 5 or More Providers



Rankings of the Bottom Five States

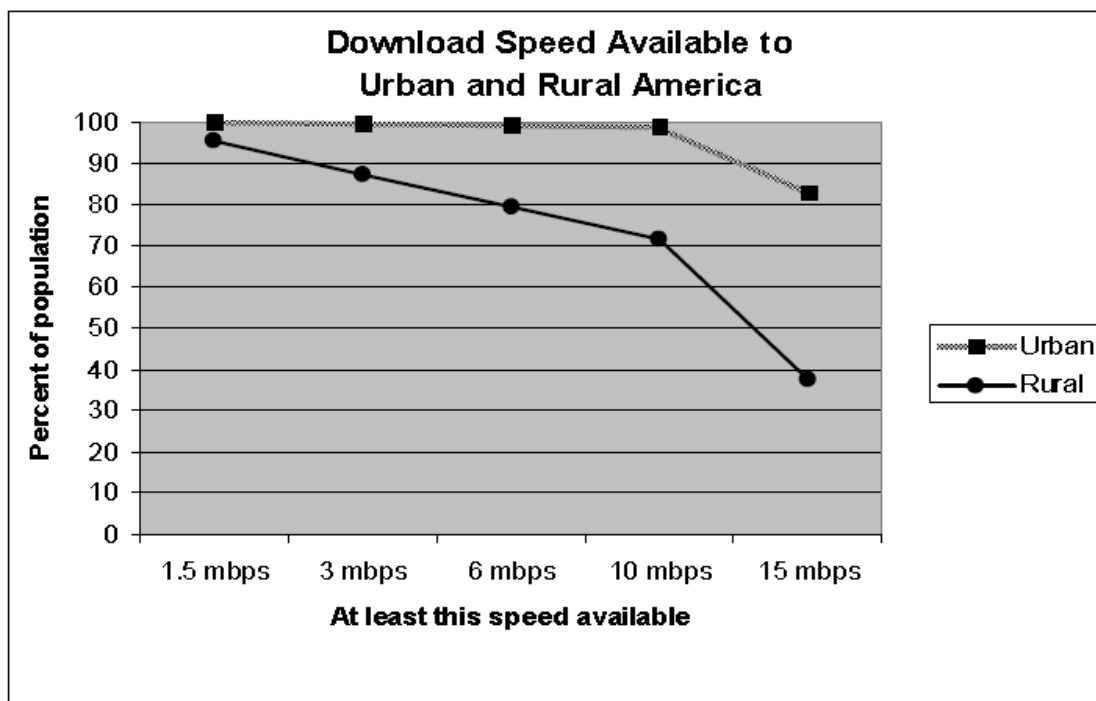
1. Mississippi,
2. Arkansas,
3. Montana,
4. New Mexico,
5. Kentucky

States with more rural and lower-income populations.



Contrasts in Broadband Availability in Urban vs. Rural communities

- Dividing America into urban and rural populations shows stark contrasts in broadband availability.
- The single best predictor of lack of availability is population density



Source: National Broadband Map, "Broadband Statistics Report. Broadband Availability in Urban v. Rural America," Washington: National Broadband Map, 2012, broadbandmap.gov/download/Broadband%20Availability%20in%20Rural%vs%20Urban%20America.pdf.



Adoption

Additional data we are collecting as part of the state broadband initiative is to determine what the adoption rate is in the state for:

- Households
- Community Anchor Institutions
 - K-12 schools
 - Universities
 - Libraries
 - Health care facilities (hospitals/emergency medical, pharmacies, labs, etc...
 - Public safety facilities (state/local police stations)
 - Government facilities
- Small Businesses

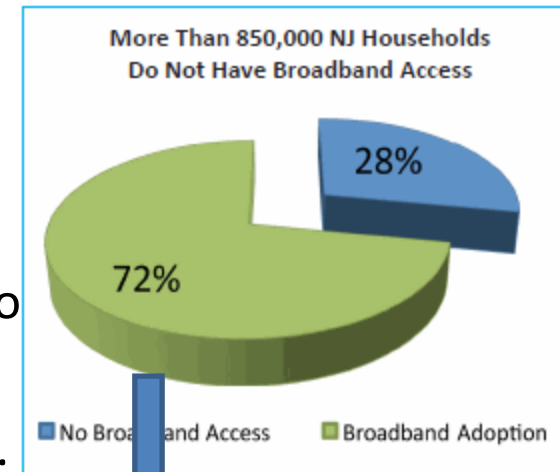


What do you think the
broadband household
adoption rate is in New
Jersey?



New Jersey Household Adoption

- In 2010, a broadband household adoption survey was conducted
 - ~72% household broadband adoption in NJ;
~28% (more than 850,000 households) in NJ did not have household broadband access (+/- 2.1%).
 - Current NJ adoption rate estimate (2012) is ~ 74%.
- Top Reasons for Non-Adoption
 - **Lack of training or skill:** (54%)
 - **Lack of Inclination** (41%)
 - **Lack of resources:** (30%)
 - **Fear of Technology:** (5%)



Over 86% were very (50%) or somewhat (36%) satisfied with their broadband service.



Household Adoption

How New Jersey Ranks

		% w/ Broadband Internet	90% Confidence Interval	
		State	Upper Bound	Lower Bound
1	Utah	79.7	81.9	77.6
2	New Hampshire	77.8	80.3	75.3
3	Washington	76.7	78.6	74.8
4	Massachusetts	75.9	77.9	73.9
5	Connecticut	74.8	77.3	72.3
6	Oregon	74.7	77.2	72.2
7	Kansas	74.6	77.1	72.1
8	Nevada	74.2	76.7	71.7
9	Arizona	74.2	76.3	72.1
10	Maryland	74.1	76.4	71.9
11	Alaska	73.4	76.0	70.8
12	New Jersey	73.3	75.2	71.4
13	California	73.1	74.0	72.2
14	Wyoming	72.9	75.5	70.3
15	Idaho	72.0	74.5	69.5
16	District of Columbia	71.7	74.2	69.2

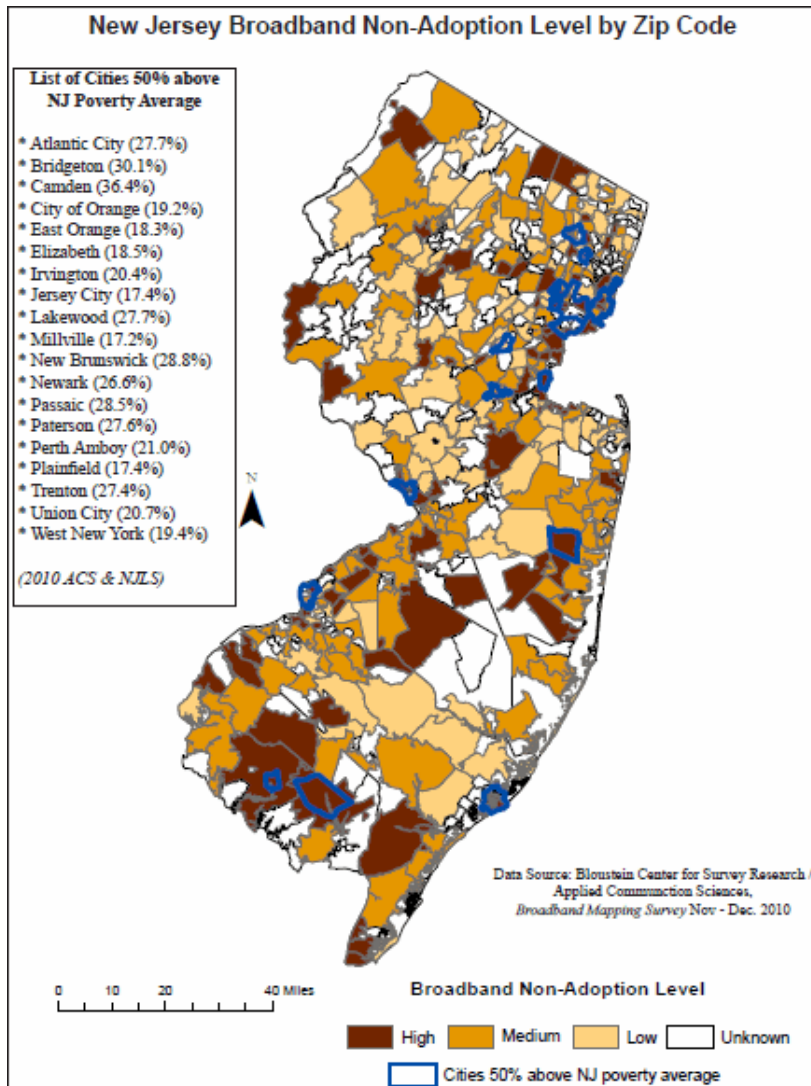
Source:

Digital Nation - Expanding Internet Usage - *NTIA Research Preview* - February 2011

http://www.ntia.doc.gov/files/ntia/publications/ntia_internet_use_report_february_2011.pdf p.17



New Jersey Household Adoption



Demographics of Non Adopters -
much more likely to be
Older, lower income, less
educated, African-American ,
clustered in urban areas,
more likely to live alone
(social isolation)

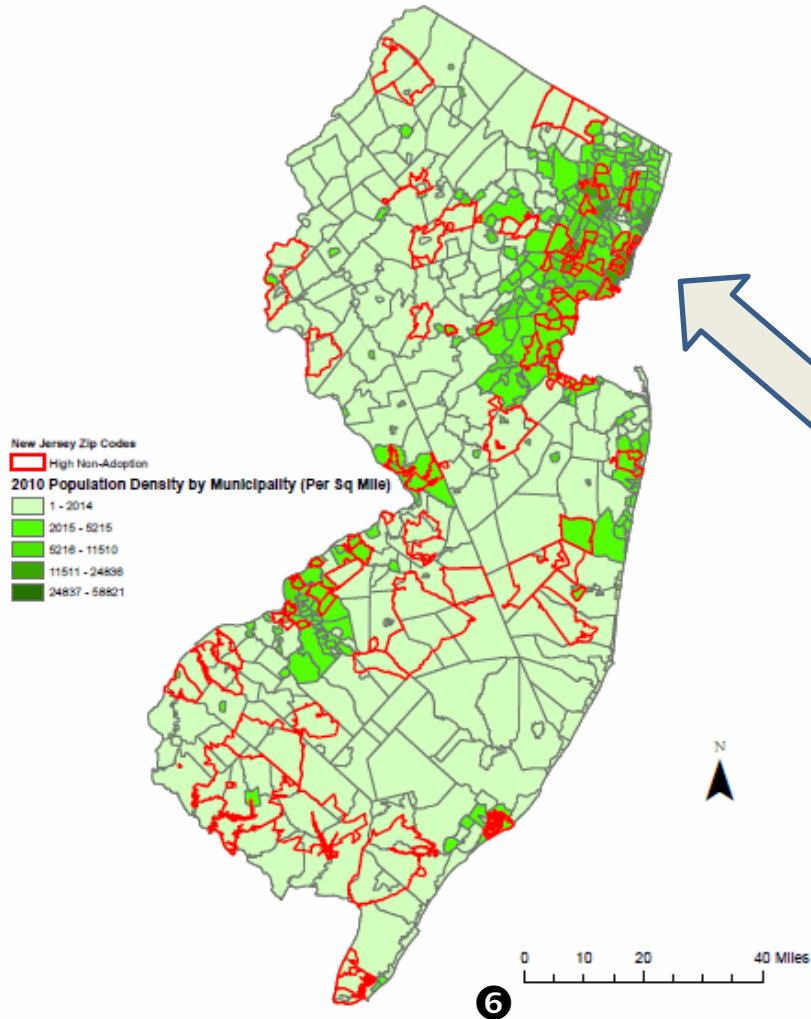
Top Barriers to household adoption

- Poverty
- Lack of resources
- Lack of experience



Household Adoption in NJ

New Jersey 2010 Population Density by Municipality



Data: Bloustein Center for Survey Research / Applied Communication Sciences Broadband Mapping Survey Nov - Dec. 2010

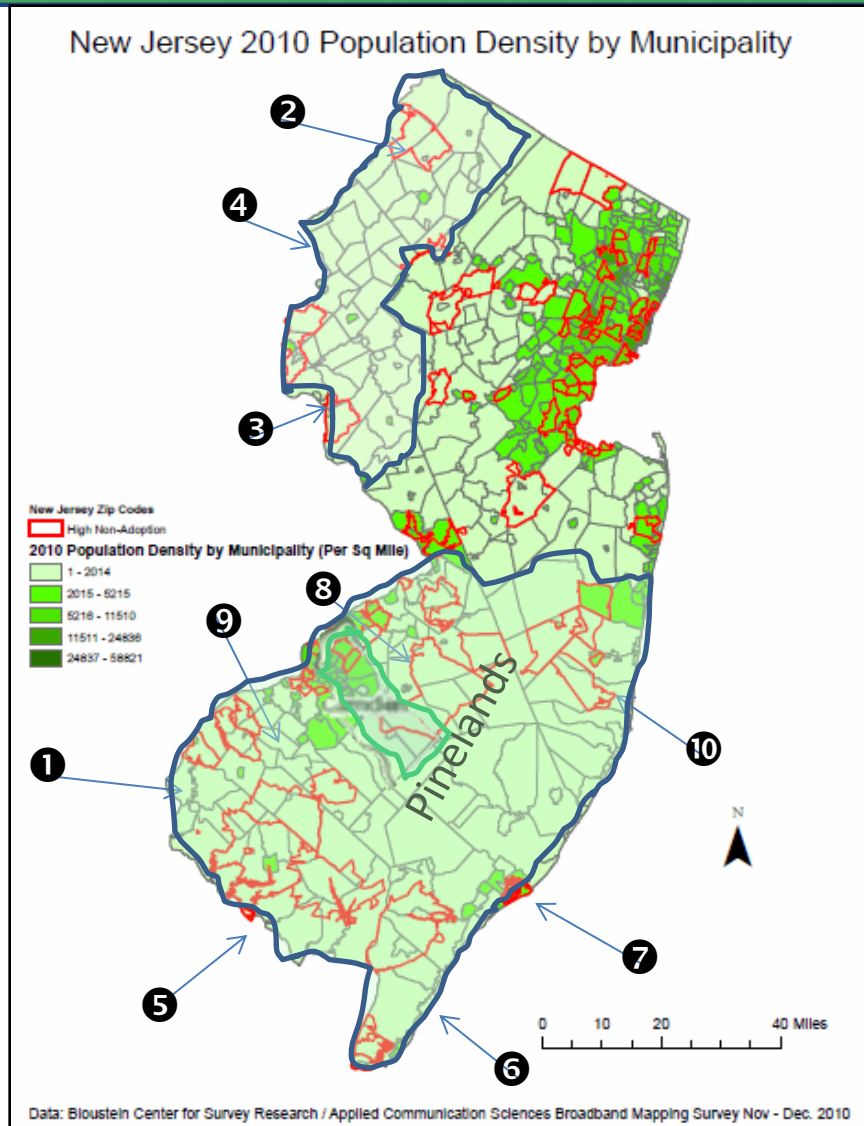
- The red outlined areas are found to have the highest non-adoption rate (lowest adoption) amongst households
- These findings show that the vast majority of the disadvantaged are located in urban areas (“urban poor”) in New Jersey



What impact do you think
broadband
non adoption has on
rural areas?



Impact of Household Adoption in Rural Areas



- Non-adoption in rural areas limits the ability of households (and employers)
 - to take advantage of telecommuting in lower-cost-of- living areas
 - to take part in the growing field of e-services
 - to benefit from businesses potentially relocating to lower-cost areas that can contribute to rural economy
 - the loss of opportunity in education and health care



How do you think
broadband
can benefit education in
rural areas?



Broadband Adoption and Effective Use in Education

- Can enhance education from pre-school to higher education
- Enables education to expand beyond the classroom
- Expands basic testing capabilities
- It can provide access to external resources
- Allows for online and distance learning
- It can improve communication with parents and teachers



Broadband Impacts in Education in Rural Areas

- Students in underserved or rural areas can become disadvantaged in finding a job in a digital economy
- Creates opportunities for people to obtain training and credentials that wouldn't otherwise be possible
- Creates the opportunity to bring specialized online programs to areas where the population density is too low for traditional classroom

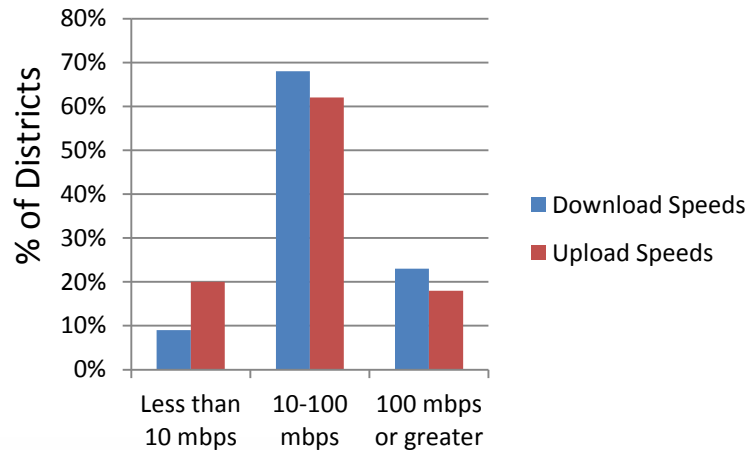


What would you guess the
broadband adoption rate
is in New Jersey K-12
schools?



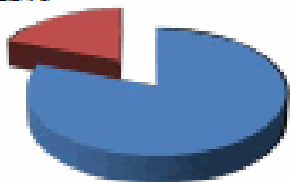
Broadband Adoption in Education in NJ

The data summarized below was collected from May – June 2012 from New Jersey school districts and testing sites. The data is self-reported and has not been independently verified. Any conclusions drawn would have to be considered preliminary.



Yes
19%

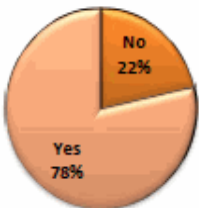
School has WiFi that is accessible to the general public:



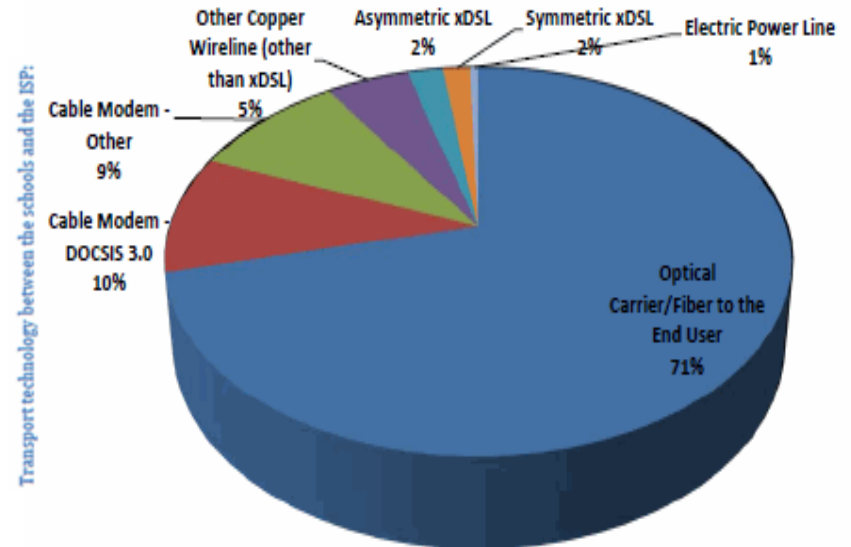
No
81%

Public WiFi	Total # of Schools
No	2027
Yes	481

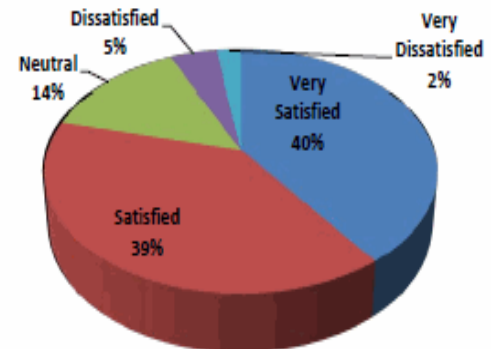
Is the current Internet connection speed adequately meeting the district's needs?



Current Internet Speed is Adequate	Total # of Districts
No	148
Yes	538



Level of Satisfaction with the ISP:

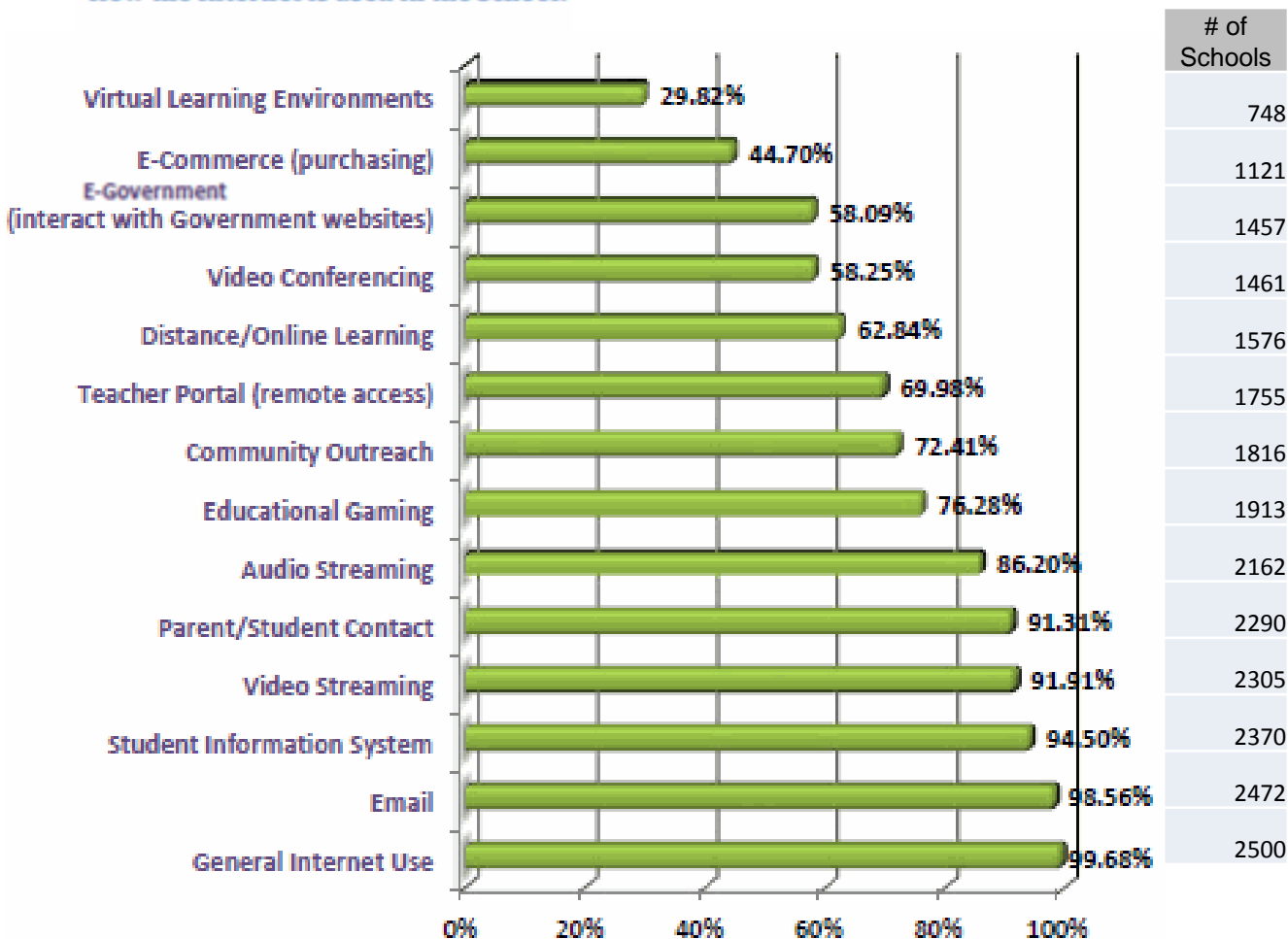




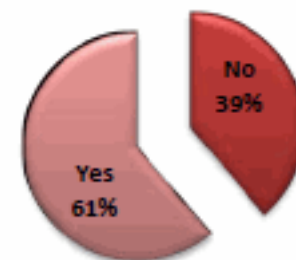
Broadband Adoption in Education in NJ

School Information – 2,508 Schools Reporting

How the Internet is used in the School:



Does the district plan to increase use of Internet-based services over the next 12 months?



Increase Use of Internet Services Over Next 12 Months	Total # of Districts
No	266
Yes	420



How do you think
broadband impacts
healthcare?



Broadband Adoption Benefits in Healthcare

The expansion of broadband access and usage in healthcare can greatly enhance quality of service:



- patient care through the use of telemedicine
- electronic prescriptions
- electronic medical records
- sharing patient care responsibilities



Broadband Impacts in Healthcare in Rural Areas

Rural areas have fewer surgeons to do surgeries and fewer specialists

Broadband in rural areas, provides the ability to:



- monitor remotely and to potentially reduce patient transfer
- connect remotely to distant specialists especially in emergencies
- share patient electronic medical records and large imaging files

Without broadband in rural areas

- Providers may decide not to locate in areas where sufficient broadband is not available



Broadband Adoption in Healthcare

- Our next goal is to conduct a survey of healthcare providers in New Jersey to find out:
 - If they receive internet service
 - If they are satisfied with the quality of service
 - If the current speed/bandwidth meets their needs
 - If they are using telemedicine services
 - If they are leasing or own their own community broadband network
 - If cost is an issue to adoption
 - What issues or barriers are preventing them from effectively adopting



How do you think
broadband can benefit
small businesses in rural
areas?



Broadband Adoption for Small Business

Broadband can significantly support small businesses to better compete and grow

- Many small businesses have a knowledge gap about how best to utilize broadband tools, leaving potential productivity gains unrealized.
- The benefits of broadband for small businesses include:
 - Increased market access ability to compete globally
 - Increased sales and marketing effectiveness
 - More efficient ways to service customers
 - Reduced communications costs and operational costs
 - Increased speed of access to knowledge
 - Increase opportunities for online businesses



Broadband Impacts on Business in Rural Areas

- Rural small businesses may not see the benefits of broadband because they may lack experience on its value to them
- A company doing a site-selection process for a new facility may choose a location with more broadband capacity than another – which creates a loss for the local economy
- Lack of broadband also creates a barrier for selling products to rural areas
- Farmers in rural communities can benefit from broadband
 - to buy feed and seed and to sell their livestock or crops
 - to check on weather conditions and obtain the latest technical information



Broadband Impacts on Agriculture in Rural Areas

- Broadband service can eliminate the distance between producers and commodity markets
- Websites make it possible to learn about livestock for sale, reducing the cost of searching for breeding stock.
- Machinery producers now allow real-time sharing of information about machinery performance from the field.
- Automated sensing and monitoring devices are now available to gather information about the extent of insect or plant pathogen, and track processes for livestock and poultry levels



Broadband Adoption Benefits for Small Business

- We are in the process of conducting a survey of small businesses in New Jersey
- As part of the grant, we will also be providing small businesses with technical assistance and resources to educate them on how the Internet can grow their business



Other NTIA Broadband Grants Awarded in NJ

<http://www2.ntia.doc.gov/new-jersey>

Grantee	Award	Type	Overview
Thomas Edison State College – New Jersey Libraries NJWorks	~\$5M	Public Computer Centers	<ul style="list-style-type: none">• Add public access computers at public libraries (845 computers were provided to 124 new jersey public libraries)• Upgrade connectivity at libraries (86 libraries received an upgrade to 10 mbps of broadband via Ethernet)• Provide job search assistance, employment skills, workforce development programs, and other online resources at libraries (1194 job readiness workshops delivered to over \$8000 NJ residents)
Communication Service for the Deaf, Inc.	~\$15M	Sustainable Adoption	<ul style="list-style-type: none">• Expand broadband adoption among people who are deaf and hard of hearing• provide them with online tools to more fully participate in the digital economy
One Economy Corporation	~\$29M	Sustainable Adoption	<ul style="list-style-type: none">• Implement a comprehensive program of computer training, wireless Internet access, broadband awareness marketing, and online content and applications• Target residents of 159 affordable and public housing developments and low-income communities in 50 cities and towns across 31 states and the District of Columbia.
University Corporation for Advanced Internet Development	~\$63M	Infrastructure	<ul style="list-style-type: none">• A large-scale, public-private partnership to interconnect more than 30 existing research and education networks• Create a dedicated nationwide fiber backbone with a capacity that would enable advanced networking features such as IPv6 and video multicasting.





Other Broadband Related Programs

Program	Estimated Timeframes
Connect2compete	<p>Aims to eliminate the digital divide by providing high speed, low cost Internet, computers, and free digital literacy training</p> <ul style="list-style-type: none">• Provides free digital literacy training online• Training sites are setup around the state to provide free training http://everyoneon.org/locator• Makes available discounted internet and computers for those who qualify http://www.connect2compete.org/index.php
EveryoneOn Campaign	<p>A 3-year national campaign to help everyone get connected and take advantage of free digital literacy training in their communities</p> <ul style="list-style-type: none">• User-friendly learning portal for new Internet Users http://www.everyoneon.org• Tools and resources to help local partners connect their beneficiaries to the power of technology and the Internet, including customizable PSAs. Press releases, marketing materials and facilitated and online digital literacy curricula http://everyoneon.adcouncil.org/tools-and-resources/
Webjunction	<p>To promote learning for all library staff by providing an open, affordable online learning community</p> <ul style="list-style-type: none">• Resources for learners http://www.webjunction.org/events/webjunction/Broadband Adoption Toolkit.html
Choosenj	<p>Choose New Jersey is an independently funded and operated 501©(3) nonprofit corporation created to encourage and nurture economic growth throughout New Jersey</p> <p>http://www.choosenj.com</p>



Next Steps

- Continue to engage stakeholders from Community Anchor Institutions to collect broadband information and assess their need and issues with broadband adoption
- Develop a Broadband Advisory Cooperative with representatives from community anchor institutions to develop a statewide broadband strategic plan
 - Foster communication, share insight and collaborate on ways to increase broadband adoption and use of broadband in each sector
 - Identify available funding programs to support the build-up of infrastructure and technology needs that leverage broadband adoption
 - Stimulate and encourage expanding broadband demand and utilization in low-adoption areas, underserved and rural communities with the need for affordable, simple and direct online access to services
- Continue to update and enhance the Broadband map
 - Collect data from service providers and update the map every 6 months
 - Clarify how the map can be used and
 - Update broadband-related data provided by CAI's
 - Allow users to report on an unserved area
- Complete the Small Business Survey
- Provide Technical assistance to small businesses



White Papers & Reports

- **The 2012 State New Economy Index**
December 2012
<http://www2.itif.org/2012-state-new-economy-index.pdf>
- **Broadband in Rural America: Economic Impacts and Economic Opportunities**
October 15, 2012
<http://www.hudson.org/files/publications/RuralTelecom-Kuttner--1012.pdf>
- **Achieving Rural Universal Service in a Broadband Era**
October 2011
http://www.gcbpp.org/files/EPV/EPV_MayoMacher_RuralUniversal102011.pdf
- **Broadband Use by Rural Small Businesses**
<http://www.marketingtechie.com/articles/SmallBusiness%20-%20Dec20.pdf>
- **Digital Nation - Expanding Internet Usage - NTIA Research Preview - February 2011**
http://www.ntia.doc.gov/files/ntia/publications/ntia_internet_use_report_february_2011.pdf
- **Nationwide Broadband Public Safety Network**
http://www.dhs.gov/sites/default/files/publications/Fact%20Sheet_Nationwide%20Public%20Safety%20Broadband%20Network.pdf
- **BROADBAND DEPLOYMENT AS TECHNOLOGICAL INNOVATION: Assessing the Needs of Community Anchor Institutions (2010)**
http://mcclure.ii.fsu.edu/publications/2010/Hinnant_McClure_Mandel_Alemanne-2010.pdf
- **National Broadband Map, "Broadband Statistics Report. Broadband Availability in Urban v. Rural America," Washington: National Broadband Map, 2012,**
<http://www.broadbandmap.gov/download/Broadband%20Availability%20in%20Rural%20vs%20Urban%20America.pdf>



State and Federal Sites

- **US Department of Agriculture /NJ Eligible Rural Areas**
<http://www.rurdev.usda.gov/NJEligibleAreas.html>
- **US Census Bureau - New Jersey – State and County Quick Facts –**
<http://quickfacts.census.gov/qfd/states/34000.html>
- **New Jersey Department of Labor**
<http://point-topic.com/wp-content/uploads/2013/02/Sample-Report-Global-Broadband-Statistics-Q2-2012.pdf>
- **New Jersey Department of Education – New Jersey School Directories**
<http://education.state.nj.us/directory/>
- **New Jersey Business and Industry Association – Business Resources**
<http://www.njbia.org/BusinessResources.aspx>
New Jersey Business Magazine - <http://www.njbmagazine.com/>



FEEDBACK ON WHAT YOU LEARNED

CONNECTING NJ

The logo for CONNECTING NJ features a stylized green and blue icon to the left of the text. The icon consists of three curved lines forming a shape that resembles a person or a signal. The text "CONNECTING NJ" is in a blue, sans-serif font. A thin green horizontal line is positioned below the text.